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Educational Television Series 1968-69

Teachers' Guide



Science INTERMEDIATE DIVISION

Environmental Science



Educational Television Branch
ONTARIO DEPARTMENT OF EDUCATION
1670 Bayview Avenue, Toronto 17

SCIENCE

Intermediate Division

ENVIRONMENTAL SCIENCE

10 programs, 20 minutes each.

This is Volume 1 of a 2-Volume series. Programs 5 to 10 will be contained in Volume 2.

General Introduction

Program one

The Environment of Man 3

Program two

Using our Environment 3

Program three

The Equation of Life 3

Program four

Our Dependence on Plants. 4

Please address inquiries and comments concerning this series to:

Assistant Superintendent,
Mathematics and Science,
Education Section,
ETV Branch,
1670 Bayview Avenue,
TORONTO 17.

INTRODUCTION

This series of ten 20-minute programs was produced for the Grade 9 Environmental Science course. Significant changes have occurred in the Environmental Science Curriculum since the series was conceived, but the topics chosen remain relevant. Teachers will have to assess their own courses of study and decide the grade level for which each program is the most suitable.

The topics presented in this series were chosen either because of their suitability for presentation on television or because they are particularly difficult topics to handle in a stimulating fashion in the classroom. Each program takes the form of a documentary film.

In a province as large and diverse as Ontario it is not possible in a series of ten programs to present topics which relate specifically to every region of the province. Although a number of post-viewing activities are suggested after each program, only the teacher, fully aware of his students' needs and abilities, can determine the most effective post-viewing activities. It is hoped that the programs will serve as "starting points" to individual or group investigations that will expand the experience of the viewing students and create in them a greater awareness of their world.

PROGRAM

THE ENVIRONMENT OF MAN

This program describes the natural environment of Ontario as it was when the Indian alone inhabited it and the changes which have occurred in the environment since that time.

PROGRAM CONTENT

The Indian accepted his environment as it was. Although he hunted, fished, and farmed, to some extent, he did little to molest the natural elements around him.

When European settlers arrived in Ontario they immediately began to change the environment to make it more like the environment they had left. This program shows the changes which have taken place to the environment of Ontario since settlement began. Cultivated fields were carved from the forests in many regions. Towns and then cities arose. Eventually the population changed from one which was predominantly agriculturally oriented to that which was largely industrially oriented, and cities became larger in the process. In bringing about the changes which have occurred, man has affected the climate, air, water, soil and other living things of the province. If man is to continue living in this environment he must learn more about its natural elements. He must understand these elements, so that he will not abuse them, but rather, develop them for his best use.

SUGGESTED PRE-VIEWING ACTIVITIES

1. Review the needs man obtains from his environment and the elements which compose the environment.
2. Discuss the environment of the region in which the school is located. Is it an industrial, agricultural or tourist region or aspects of all? How do the natural elements of the environment enter into the economy of your region?

SUGGESTED POST-VIEWING ACTIVITIES

1. Trace the changes which have occurred in the environment of the region as a result of settlement, e.g. settlement patterns, population density, agricultural activities, industrial activities.
2. Discuss the effect of man on the soil, water, air and living things of the environment.
3. Discuss the effect of man's activities in the region on man himself.

PROGRAM

2

USING OUR ENVIRONMENT

This program shows how man has used his environment in pursuit of his physical necessities of life.

PROGRAM CONTENT

Man derives his physical necessities of food, shelter and clothing from his environment. In the deep soil areas of the province where the climate is suitable, man has been able to produce food in abundance. Some environments, however, are not blessed with suitable climatic and soil conditions and the people of these areas are plagued with poverty, famine, sickness and early death. Although unsuitable climatic and soil conditions may hinder man from meeting his physical needs in many ways, man is responsible for his own plight in this regard. Over population, improper land use, failure to make use of technical and scientific knowledge, religious taboos or ignorance and illiteracy all have prevented him from producing sufficient food.

SUGGESTED PRE-VIEWING ACTIVITIES

1. Discuss the various ways in which man has met his physical needs in the past, e.g. clothing from sheep, wood for log homes. How does man meet his needs today? The program should make the viewer aware of changes which have taken place in recent times in man's endeavour to meet his physical needs.

SUGGESTED POST-VIEWING ACTIVITIES

1. The students should be encouraged to see how well he, himself, lives in contrast to the peoples of South America, Africa and Asia. What do the students think that they can do to correct this imbalance.
2. What is wrong with the use of our environment in Ontario, in Canada, in North America? How do the students think that it can be improved?

PROGRAM

3

THE EQUATION OF LIFE

Program three reviews the process of photosynthesis and then concentrates on how the plant utilizes the products of the reaction.

PROGRAM CONTENT

Photosynthesis and respiration are perhaps the two basic reactions least understood by grade nine and ten students. The program begins by pointing out briefly the importance of green plants to man. A living cell is compared with a tractor motor and a light bulb to show that each requires energy in order to function. This comparison leads to a consideration of the essentials required for the photosynthetic process. An examination of respiration, the reverse of photosynthesis, leads to the idea of growth. Both vegetative and reproductive growth are considered. The program ends with an examination of the factors which affect plant growth.

SUGGESTED PRE-VIEWING ACTIVITIES

1. It is recommended that the students have covered the unit in the curriculum on photosynthesis. The program could then serve to review the material in this unit and hopefully make it more significant to them.

SUGGESTED POST-VIEWING ACTIVITIES

1. Re-emphasize the significance of photosynthesis and respiration.
2. Carry out various types of vegetative propagation.
3. Have students carry out individual experiments or investigations which may have been suggested by the content of the program.

A large number of people are employed in manufacturing various goods to facilitate the cultivation, harvesting and preservation of various plant products. In addition, a number of people are involved in the actual production and collection of the plants and their products. The most important value of the plant to man and other animals, however, is its food value. The plant is the source of the energy required for life. Although man requires plants for food, he also values plants for the aesthetic enjoyments they give him. Plants make life more pleasant in various ways.

SUGGESTED PRE-VIEWING ACTIVITIES

1. What part do plants play in meeting the needs of the students' everyday life?

SUGGESTED POST-VIEWING ACTIVITIES

1. How are the lives of the students made more enjoyable because of plants?
2. Have the students discuss various jobs or professions which have no relationship, in any aspect, to plants.
3. Have the students discuss various jobs or professions,
 - which have a direct relationship to plants — town planner, landscape architect, etc.,
 - which have no relationship, in any aspect, to plants.

PROGRAM**4****OUR DEPENDENCE ON PLANTS**

This program shows some of the ways in which plants serve the needs of man.

PROGRAM CONTENT

Man depends on plants, either directly or indirectly, for the energy needed to sustain his life and meet his various life processes. Plants and plant products account for 60% of our economic activity.



SCIENCE – ENVIRONMENTAL
Intermediate Division
10 programs, 20 minutes each

Prog. No.	CBC 10:10-10:30	CBLT 9:55-10:15	CHCH 9:45-10:05	CKCO 10:10-10:30	CJOH 9:45-10:05	CBOT 9:55-10:15	CKLW 10:40-11:00
1	OCT. 16 OCT. 18 9:30-9:50	OCT. 28	OCT. 21	OCT. 16	OCT. 15	OCT. 18 9:40-10:00	OCT. 23
2	NOV. 6 NOV. 8 9:50-10:10	NOV. 4	NOV. 4	OCT. 30	OCT. 22	NOV. 8	NOV. 6
3	NOV. 27 NOV. 29 9:50-10:10	NOV. 25 9:45-10:05	NOV. 25	NOV. 20	NOV. 19	NOV. 22 9:50-10:10	NOV. 27
4	DEC. 11 DEC. 13 9:50-10:10	DEC. 9	DEC. 16 9:30-9:50	DEC. 6	DEC. 10	DEC. 13 9:50-10:10	DEC. 13
5	JAN. 8 9:40-10:00 JAN. 10 9:40-10:00	JAN. 6	JAN. 6 9:25-9:45 JAN. 7 9:30-9:50	JAN. 7	JAN. 7	JAN. 10 10:00-10:20	JAN. 14
6	JAN. 29 9:40-10:00 JAN. 31 9:40-10:00	JAN. 27	JAN. 27 9:25-9:45 JAN. 28 9:30-9:50	JAN. 28	JAN. 28	JAN. 31	FEB. 4
7	FEB. 19 9:45-10:05 FEB. 21 9:50-10:10	FEB. 24 10:00-10:20	FEB. 17 9:25-9:45	FEB. 25	FEB. 18	FEB. 21 10:10-10:30	MAR. 4
8	MAR. 12 9:45-10:05 MAR. 14 10:05-10:25	MAR. 24 10:10-10:30	MAR. 10 9:25-9:45	MAR. 25 9:50-10:10	MAR. 11	MAR. 14	APR. 1 10:20-10:40
9	APR. 9 10:05-10:30 APR. 11 9:30-9:50	APR. 14	APR. 21 9:25-9:45	APR. 15 9:30-9:50	APR. 1 10:10-10:30	APR. 11 10:00-10:20	APR. 22 10:00-10:20
10	MAY 7 10:10-10:30 MAY 9 9:30-9:50	MAY 5	MAY 5 9:25-9:45	MAY 6 9:30-9:50 MAY 9 10:05-10:25	APR. 22 10:10-10:30	MAY 2 9:50-10:10	MAY 13 10:00-10:20 MAY 16 10:35-10:55

ENVIRONMENTAL SCIENCE